from pre REP value. Changes in CSA and MCE at 10 min REP determined infarct size as 0.71 · CSA-0.17 · MCE-32 ($r = 0.91$, $p < 0.001$).

Conclusions: Following REP, variable degrees of wall swelling and MCE perfusion are observed. When wall swelling is mild, MCE returns to baseline and infarct size is reduced. When wall swelling is marked, MCE perfusion remains diminished and infarct size is large. The extent of change in wall thickness and MCE uptake correlate with infarct size, and may be of value in quantifying necrosis early after myocardial reperfusion.

1050-124 Residual Blood Supply to the Risk Area During Coronary Occlusion Limits Infarct Size Following Myocardial Reperfusion: Evidence From Contrast Echo

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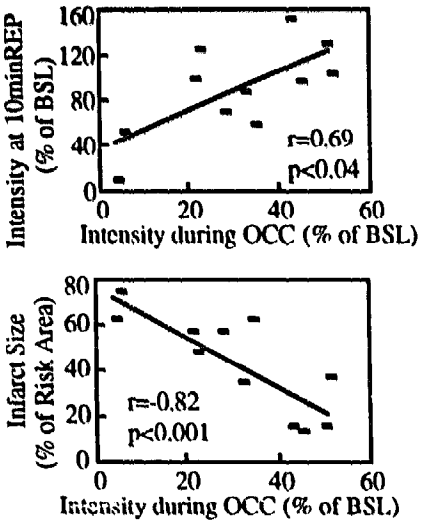
The factors which determine the extent of myocardial salvage versus necrosis following reperfusion (REP) remain uncertain. Therefore, we used myocardial contrast echocardiography (MCE) to examine the role of residual perfusion within the risk area of an occluded coronary in determining the extent of infarction. We performed MCE in short axis image using IV 0.15 cc/kg pre-activated QW7437 (Sonus) in 11 dogs who underwent 3-hr LAD occlusion followed by 3-hr REP. At 3-hr occlusion and 10-min REP, mean background subtracted videointensity (VI) was measured from the risk segment (defined as MCE opacification defect at 3-hr occlusion) and was normalized to nonischemic segments. Infarct size was derived by triphenyl tetrazolium chloride as % unstained area to the risk area.

Results: (Figure) MCE-VI during occlusion (OCC) was taken as marker of residual blood supply, and showed a direct correlation with MCE-VI at 10-min REP ($r = 0.69$, $p < 0.04$). MCE-VI during occlusion showed a close inverse correlation with infarct size ($r = -0.82$, $p < 0.001$).



Conclusions: MCE evidence of residual blood flow in the risk area during occlusion correlates with the extent of infarction following reperfusion and the degree of post ischemic reactive hyperemia. These data are consistent with the concept that residual flow during occlusion reduces the extent of infarction either by preserving myocardial microcirculatory integrity or by avoiding reperfusion injury.

MONDAY POSTER

1051 New Echocardiographic Methods for Assessment of Left Ventricular Function

Monday, March 30, 1998, Noon–2:00 p.m.
Georgia World Congress Center, West Exhibit Hall Level
Presentation Hour: Noon–1:00 p.m.

1051-137 Immediate Effects of Partial Left Ventriculectomy on Regional Left Ventricular Function: Quantitative Assessment by Color Kinesis Echocardiography

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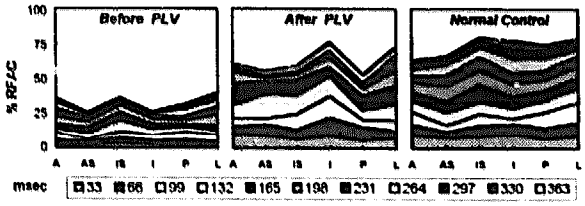
Partial left ventriculectomy (PLV) is a novel surgical therapy for pts with severe heart failure, however, its effects on regional LV function are not known. Accordingly, 8 consecutive heart failure pts, aged 58 ± 5 yrs, (EF 12 ± 3%) had color kinesis (CK) studies before and immediately after PLV. Transesophageal mid-LV short-axis color-coded CK images were digitally acquired at 30 Hz and analyzed by customized software (Mor-Avi et al, Univ. Chicago). Quantitative time-motion data were assessed from 6 segments: anterior (A), A-septal (AS), inferior (I), I-septal (IS), posterior (P) and lateral (L). A control group of 12 subjects, aged 52 ± 12 yrs, had similar CK analysis.



Regional fractional area change (RFAC) improved from 34 ± 11 to 53 ± 13*% after PLV (example shown) in all segments except the posterior PLV site (*$p < 0.05$ vs. before). RFAC remained less than control: 74 ± 10% ($p < 0.05$).

Conclusion: PLV results in an immediate improvement in regional LV function by quantitative CK. Long term results and their relation to pt outcome remain to be defined.

1051-138 Echocardiographic Detection of Regional Diastolic Dysfunction in Patients With Coronary Artery Disease and Normal Wall Motion

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Background: Prolonged regional relaxation and delayed endocardial motion precede systolic dysfunction in myocardial ischemia. Color Kinesis (CK) allows direct quantification of the timing of regional endocardial motion. Our aim was to determine whether Color Kinesis could detect regional diastolic dysfunction at rest in patients with coronary artery disease (CAD) and no echocardiographic evidence of regional wall motion abnormality.

Methods: We studied 29 normal subjects and 14 patients with CAD. Regional diastolic endocardial motion was quantified using custom software applied to diastolic CK images, which resulted in regional LV filling time-curves. For each segment, curves obtained in normal subjects were averaged to generate a normal range for comparisons with individual patients' data. Regional filling curves were correlated with the findings of coronary angiography on a segmental basis. Significant coronary stenosis was defined as ≥70% luminal narrowing.

Results: Delayed early diastolic endocardial motion was detected in 37/168 segments, all supplied by stenotic coronary arteries. In 6 patients, 16/168 segments showed normal regional filling curves despite significant stenosis. Three of these six patients had evidence of collateral circulation